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ABSTRACT

This reports presents data on college freshman retention and graduation in the University of Wisconsin (UW) System. The four sections of text and data tables examine: trends in retention and graduation rates for the period 1977-98; graduation and retention rates by new freshman characteristics (high school quartile, entry age, race/ethnicity, gender, residence); retention, graduation, and transfer-out rates; and benchmarking (derived from expected graduation rates, peer institutions, national/regional comparisons, and internal UW system data). A summary of findings notes that: (1) UW retention rates have increased steadily from 1977-98; student attrition is greatest in the first year after matriculation and declines thereafter; (2) four-year graduation rates declined in the 1980s but increased in the 1990s; the 1995 cohort had the highest four-year graduation rate ever; (3) six-year graduation rates increased from 19.2 percent in fall 1977 to 59.5 percent for the 1993 cohort; (4) students from the highest high school quartile had cumulative six-year graduation rates approximately twice those of students in the third and fourth quartiles; (5) students entering the UW system prior to age 20 had six-year graduation rates approximately twice those of older students; (6) and six-year graduation rates have increased for all students of color. Six additional data tables are appended. (CH)

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The University of Wisconsin System

UNIVERSITY OF WISCONSIN SYSTEM UW

Occasional Research Brief

Volume 00, No. 1: June, 2000

ED 445 585

New Freshman Outcomes: Retention and Graduation

Executive Summary

Completion of the first year of college and continuation to the second year has increased substantially for full-time new freshmen in the University of Wisconsin System, from 75.0 percent for the 1977 cohort to 84.0 percent for the 1998 cohort. Of the students who leave, the greatest number do so during the first year, with declining rates of attrition each year thereafter. Such data indicate that second-year retention marks a critical juncture in the progression to graduation. This is in line with current theories regarding student retention.

Four-year graduation rates declined in the 1980's but increased in the 1990's. The 1995 cohort had the highest four-year graduation rate, surpassing the previous peak rate for the 1977 cohort. These recent increases in the four-year graduation rates have been positively influenced by the concomitant implementation of UW System initiatives to reduce the number of credits required for degree completion and to increase access to core courses.

The six-year graduation rate increased from 49.2 percent of the fall 1977 new freshman cohort to 59.5 percent of the 1993 cohort. The combination of the six-year graduation rate with the seventh year enrollment rate offers an excellent predictor of the eventual graduation rate. This combined measure is used to provide additional insight into long term graduation trends in the UW System.

Students from the top quartile of their high school classes had cumulative six-year graduation rates that were approximately twice those of the students from the third and fourth quartiles of their high school classes. Overall, it appears that the increase in the six-year graduation rate for the 1993 cohort reflects a decline in the proportion of students admitted from the lower half of their high school classes, from 20.6 percent in 1981 to 11.0 percent in 1993.

Students entering the UW System prior to the age of 20 had six-year graduation rates approximately twice those of older students. However, the younger students made up the vast majority of the new freshman cohorts (approximately 96%). Female students consistently had higher six-year graduation rates than their male counterparts, and this gap between the two became wider over the years. However, the seventh year continuation rates were slightly higher for male students, narrowing the gap between the two groups.

Since 1977, six-year graduation rates have increased for all students of color, with the exception of a small decline in 1991. Although the six-year graduation rates for these groups tended to be lower than for the White students, seventh year continuation rates were somewhat higher. For some of the students of color categories, the enrollment numbers were relatively small making fluctuations in graduation rates more noticeable.

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Executive Summary - continued

With respect to residency, students from outside Wisconsin had higher six-year graduation rates than in-state students for the 1993 new freshman cohort. Minnesota reciprocity students had somewhat lower six-year graduation rates than the other nonresident students. Although the Wisconsin residents had the lowest six-year graduation rates, they had higher seventh year continuation rates, bringing their expected graduation rates closer to that of the nonresident students.

For the thirteen UW colleges, second year retention rates have fluctuated considerably throughout the past twenty years. These rates have presented no significant directional trend. Six-year bachelors degree attainment rates for students who started in the UW Colleges did show a more clearly discernable trend, declining from the 1980 new freshman cohort to the 1993 cohort. However, during this time, the number of students transferring from the UW Colleges to the UW four-year institutions also declined, reducing the pool of potential six-year graduates and thus the six-year graduation rate. None of the above measures are sufficient for the purposes of evaluating institutional performance. It is significantly more valuable to focus the UW Colleges' retention and graduation measures on those students who actually transfer to the four-year institutions, by comparing their retention and graduation rates with those of transfers from other institutions. Such comparisons have been presented in other system reports. These reports clearly demonstrate that the transfer students from the UW Colleges graduate at a higher rate than transfer students from any other type of institution.

For the purposes of assessing institutional performance, it is important to establish appropriate benchmarks or standards by which retention and graduation rates may be assessed. Such benchmarks can be derived from the performance data of peer institutions, national or regional aggregated data, or expected graduation rates based on predictive statistical models. There is always some degree of variation in institutional mission and some lack of comparability among peer groups or any other external comparisons that may be utilized. The greatest challenge is the selection of peer institutions or other comparison groups that best approximate the characteristics of the institutions within the UW System. The most relevant system-level comparisons are with regional/national graduation rates, since these represent aggregates of a wide range of institutions. For example, the graduation rate for the UW System new freshmen was 51.8 percent as compared with the national rate of 47.6 percent for the 1991 full-time new freshmen cohort. However, to provide information for longitudinal assessment that lends itself to continuous improvement, the best benchmarks are established within the UW System through the use of trend data.

In order to examine the phenomena of student attrition thoroughly, it is necessary to consider the multiple variables that significantly influence retention and graduation rates. Additional research is, therefore, required to enable the identification of these variables and the ways in which they interact to affect decisions to leave or to remain in higher education. Also, levels of institutional impact on retention and graduation can be determined with respect to specific factors that are under university control. Multivariate analyses can help to explain the contribution of each of the variables as well as their interactions. Also, the use of student interviews regarding their engagement in specific activities believed to promote retention can add another dimension of insight into the retention decisions. Specifically, the UW System plans to participate in the National Survey of Student Engagement (NSSE). Such research opportunities enhance the ability of the UW System to develop policies that will have a positive effect on student retention and graduation.

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INTRODUCTION

Student retention and graduation rates are the most commonly reported measures of performance by institutions of higher education. These rates are often used by policy makers, legislators and the general public as a barometer indicating how effectively universities are serving the needs of their students. *U.S. News and World Report*, as well as other publications, focus attention on these rates as a means of making comparisons and ranking colleges and universities in the United States. Within the University of Wisconsin System, retention and graduation rates have long been a significant component of the annual accountability report and continue to be regarded as key indicators of educational quality.

To understand the significance of student retention and graduation outcomes, it is important to address the multiple student and institutional factors that influence decisions to leave or remain in college. Some of these factors may be outside of institutional control and have limited usefulness in the assessment of institutional performance, while other factors may be directly related to institutional policy and practice. It is also important to examine rates of retention and graduation at various points in the educational process. Researchers who study student attrition stress the importance of the transition between first and second years of study. They suggest that the second year retention measure is a good predictor of student success, representing a critical point in the progression from matriculation to degree completion.

Although four years has been generally considered the standard length of time for completion of a baccalaureate degree, in recent years many students have been taking more than the traditional four years to complete their degrees. Consequently, the National Center for Education Statistics has begun collecting four, five and six-year graduation rates. The current national standard for graduation rate reporting is 150 percent of traditional time (six years for a four-year degree program). In this research brief, graduation rates are reported at the end of the fourth, fifth and sixth years.

The increased focus on higher education accountability has led to a need for comparing institutional performance indicators with a variety of benchmarks. The assessment of graduation and retention rates can differ depending on the benchmarks utilized. In order to utilize national benchmarks for comparisons, data analysis practices must adhere to national standards. With this in mind, this research brief focuses on new freshmen who enrolled for 12 or more credits during their first semester. This is the national standard for the collection of cohort data regarding retention and graduation in institutions of higher education. Additionally, internal UW System comparisons with prior years' performance provide a useful alternative to national comparisons for the purposes of institutional improvement.

In the first section of this brief, retention and graduation rates are reported over a period of years for the purposes of trend analysis. The second section addresses six-year and longer-term graduation rates in relation to student characteristics. A third section of this report focuses on student performance at the UW Colleges with respect to the unique missions of these institutions. A fourth section provides discussion of approaches to the utilization of various comparison groups to establish appropriate benchmarks for the UW System. The brief concludes with a section providing further analysis of the data, a discussion of policy and planning implications, and suggestions for future research.

SECTION I: Trends in Retention & Graduation Rates

This section offers an analysis over time of retention and graduation rates for first-time, full-time new freshmen. Particular attention is given to second year persistence as a critical point in the progression of a student's academic career and as a predictor of eventual graduation.

Retention Rates

The rate at which the new freshmen cohort enrolls in successive years of study at any UW System institution is the system-wide retention rate. Second year retention rates have increased substantially since the 1970's (see Figure 1). The proportion of new freshmen retained to the second year of study has increased from 75.0 percent of the Fall 1977 cohort to 84.0 percent of the Fall 1998 cohort. For this most recent cohort, institutional second year retention rates range from 74.6 percent to 93.5 percent.

Table 1 shows that the largest proportion of students who leave do so in the first year. This demonstrates that the first-to-second year transition is a critical juncture in the higher education pipeline. For the 1996 cohort (the most recent year for which complete data are available) approximately 16 percent left during the first year, another 10 percent after the second year, and only three percent after the third year. Appendix A details second year retention rates by institution.

Figure 1
UW System Full-time New Freshmen Retention Rates

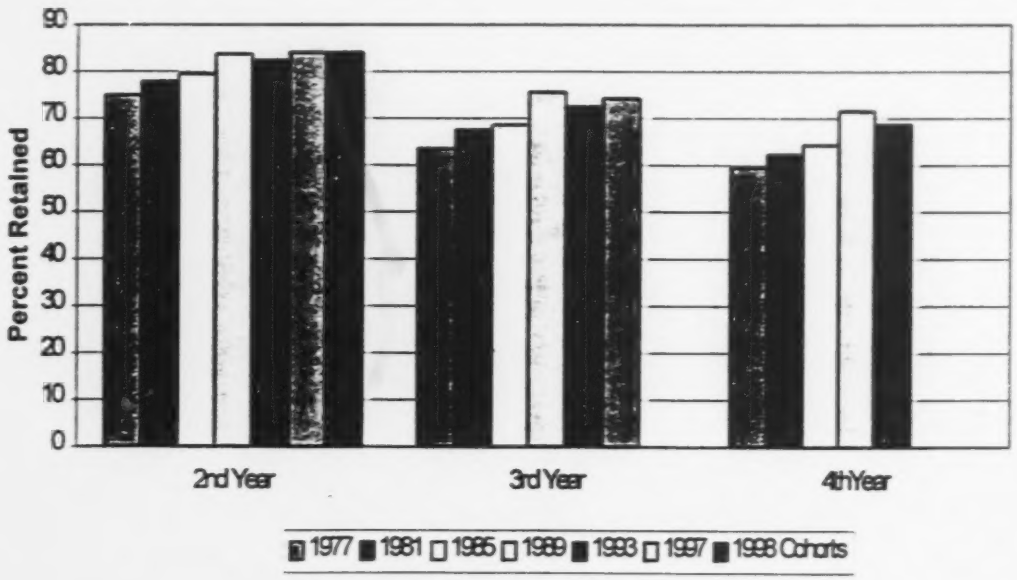

Table 1
UW System Percentage of Full-time New Freshmen Retained

Fall	Cohort Size	Year of Enrollment 2nd Year	3rd Year	4th Year
1977	21,687	75.0	63.5	59.5
1978	22196	75.9	65.2	60.9
1979	23,016	77.4	65.8	60.6
1980	23,773	76.6	65.7	61.1
1981	23,090	77.8	67.6	62.3
1982	22,224	80.0	68.6	64.2
1983	22,725	78.9	68.3	63.5
1984	23,073	80.2	69.4	64.6
1985	23,338	79.4	68.6	64.3
1986	23,167	79.4	69.3	65.1
1987	21,655	81.9	71.7	68.3
1988	22,284	82.6	73.3	70.3
1989	19,882	83.7	75.6	71.5
1990	19,707	82.8	73.7	68.7
1991	19,542	82.0	71.6	67.5
1992	18,576	82.8	72.7	68.8
1993	18,976	82.4	72.5	68.8
1994	18,875	81.3	71.9	68.1
1995	20,173	83.0	73.3	69.5
1996	21,269	83.6	73.8	70.4
1997	22,397	84.0	74.2	
1998	22,999	84.0		

Graduation Rates

Six-year graduation rates for full-time new freshmen have increased from 49.2 percent of the Fall 1977 cohort to 59.5 percent of the Fall 1993 cohort (see Table 2 and Figure 2). For the Fall 1993 cohort, six-year graduation rates vary from 27.3 percent to 73.3 percent, as would be expected in an array of institutions with differing missions. The all-time highest six-year graduation rate was at 59.9 percent for the 1989 cohort. The 1990 and 1991 cohorts had small declines from the 1989 rate, with the 1992 and 1993 rates rebounding nearly to the 1989 level. Appendix C details six-year graduation rates by UW institution.

While four-year graduation rates decreased throughout most of the 1980's, there have been increases in these rates in the 1990's. The 1995 cohort had the highest four-year graduation rate (22.7%) since Fall 1977. This increase in the four-year rate was concurrent with the increases in the six-year rate (see Appendix B).

The timing of the increases in the four-year graduation rate suggests that these rates have been positively influenced by the implementation of institutional initiatives designed to decrease credits-to-degree. By reducing the number of credits required for graduation and increasing access to core courses, UW institutions have successfully reduced the length of time needed to complete a degree (see Table 3). This is reflected in the data by an increase in the four-year graduation rates from 16.2 percent to 22.7 percent (see Appendix B).

Table 2
UW System Cumulative Graduation Rates of Full-time New Freshmen

Cohort Year	Cohort Size	Year of Graduation		
		4th Year	5th Year	6th Year
1977	21,687	21.2	43.4	49.2
1978	22,196	21.0	44.0	49.9
1979	23,016	19.8	43.6	50.0
1980	23,773	19.5	43.6	49.8
1981	23,090	18.9	44.4	51.4
1982	22,224	18.6	45.5	52.9
1983	22,725	17.5	44.9	52.6
1984	23,073	17.2	45.6	53.7
1985	23,338	16.8	45.2	53.6
1986	23,167	16.7	45.4	54.2
1987	21,655	17.1	47.5	57.2
1988	22,284	18.7	48.9	59.2
1989	19,882	17.0	49.2	59.9
1990	19,707	15.5	46.6	57.6
1991	19,542	16.2	46.6	56.9
1992	18,576	17.7	48.1	58.5
1993	18,976	19.7	50.2	59.5
1994	18,875	20.9	50.7	
1995	20,173	22.7		

Figure 2
UW System Full-time New Freshmen Graduation Rates

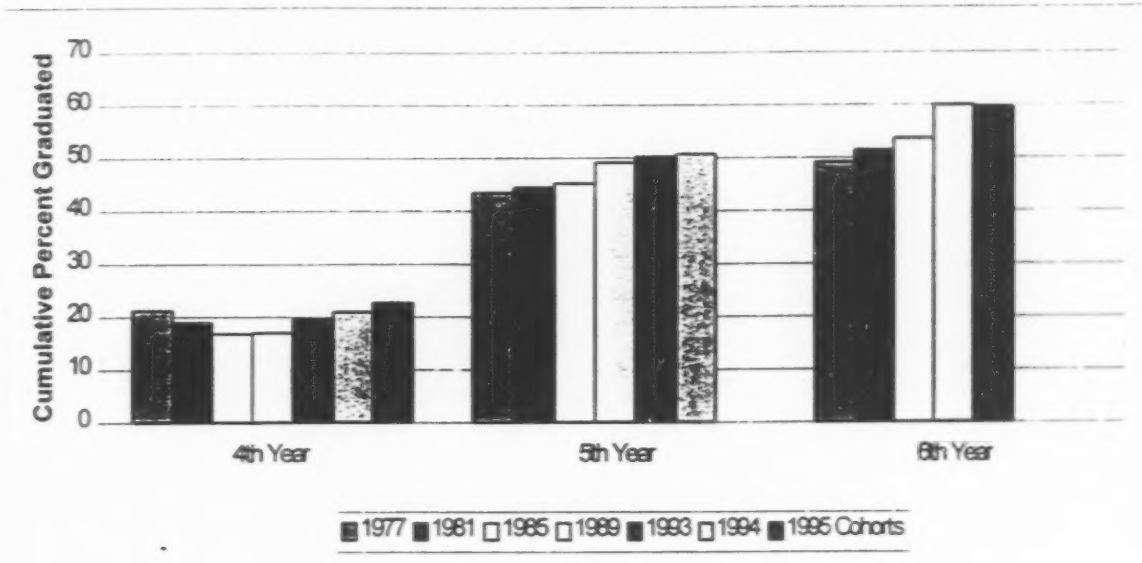

Table 3
UW System Attempted Credits to Degree for Graduating Classes

Graduation Year	Attempted Credits to Degree
1984-85	145
1993-94	145
1994-95	145
1995-96	144
1996-97	143
1997-98	142
1998-99	140

NOTE: Data represents attempted credits for all graduates who started as new freshmen in the UW System.

Measure of Eventual Success

Students who remain in school to the seventh year are highly likely to graduate. With this in mind, the cumulative six-year graduation rate plus the seventh year retention rate is often used as a measure of the long-term success rate for the cohort. This combined rate is referred to as the "eventual graduation rate" for the cohort. Appendices C and D detail six-year graduation and seventh year retention rates, by institution.

Table 4 exhibits how closely this predictive measure approximates the long-term graduation rate for many of the UW System new freshman cohorts. For example, the full-time 1979 cohort's six-year graduation rate plus their seventh year persistence rate (56.3%) approximated the graduation rate by 15 years (56.4%) to one-tenth of one percent. Therefore, the predictive value of this measure warrants its use as a tool for assessing long-term graduation rates. The eventual graduation rate rose from a low of 55.3 percent for the 1977 cohort to 65.1 percent for the 1993 cohort (see Figure 3).

Figure 4 shows second year retention rates, six-year graduation rates and eventual graduation rates for the last decade. Expectedly, these three measures are highly correlated. This demonstrates the critical importance of persistence to the second year. After passing this hurdle, attrition slows and subsequent persistence to graduation is much more likely.

Figure 3
UW System Eventual Graduation Rate
Six-Year Graduation Rate and Seventh Year Retention Rate
For Full-time New Freshmen

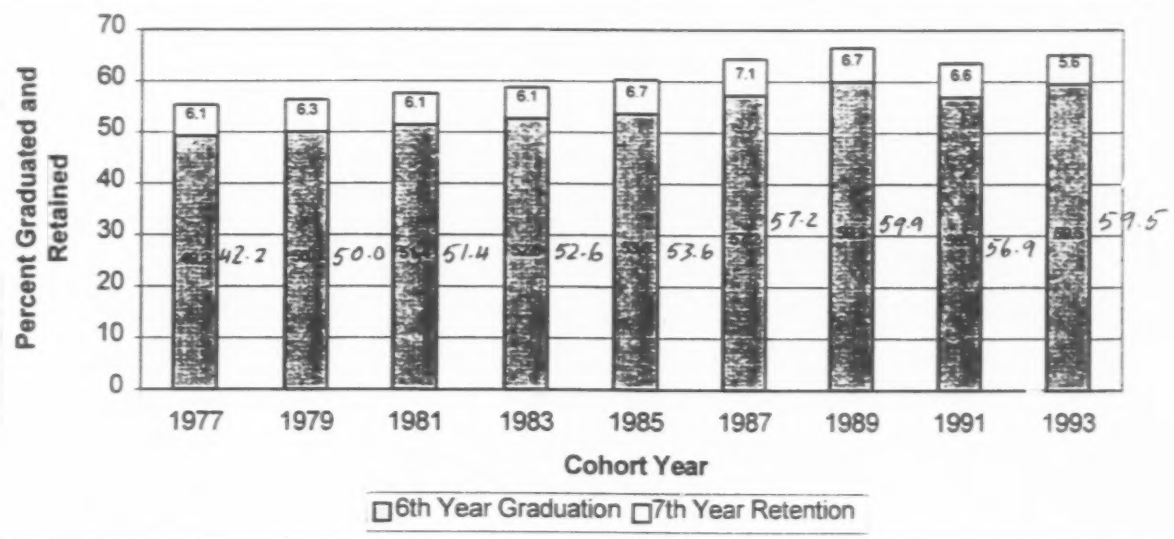

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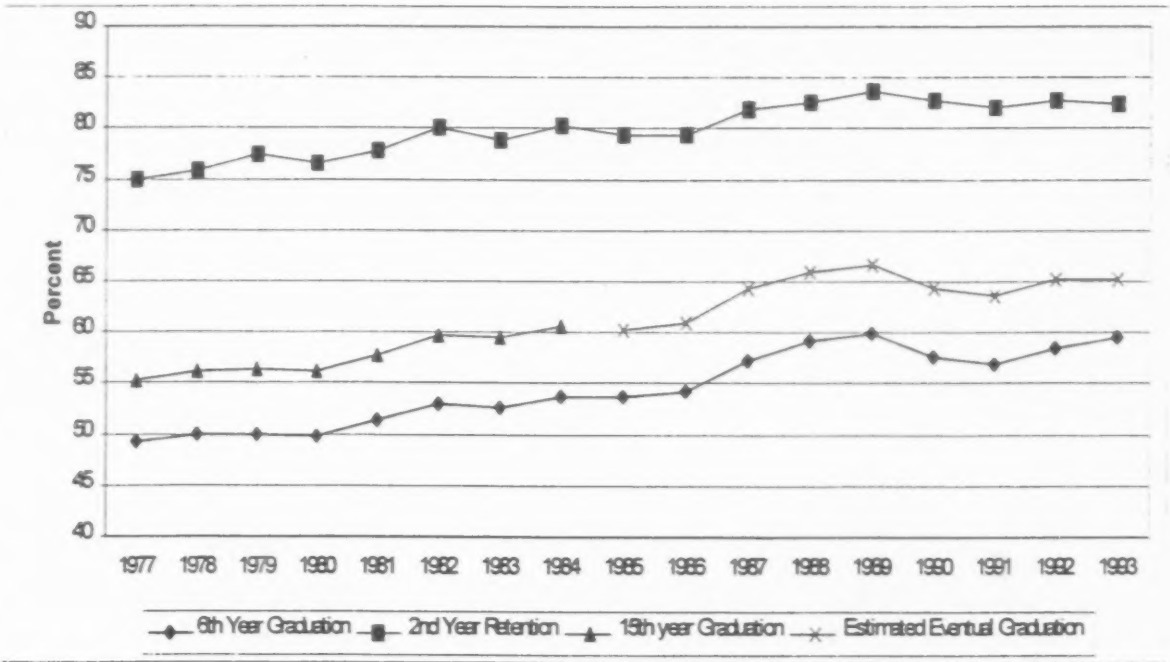
Table 4
UW System Eventual Graduation Rate
For Full-time New Freshmen

Fall	6th year Graduation	7th year Retention	Estimated Eventual Graduation Rate	Actual 15th year + Graduation	Difference Estimated from Actual
1977	49.2	6.1	55.3	55.3	0.0
1978	49.9	6.1	56.0	56.1	-0.1
1979	50.0	6.3	56.3	56.4	-0.1
1980	49.8	6.1	55.9	56.2	-0.3
1981	51.4	6.1	57.5	57.8	-0.3
1982	52.9	6.4	59.3	59.6	-0.3
1983	52.6	6.1	58.7	59.5	-0.8
1984	53.7	6.5	60.2	60.6	-0.4

Figure 4
UW System Second Year Retention,
Six-Year Graduation and Eventual Graduation Rates
For Full-time New Freshmen



SECTION II: Graduation Rates by Student Characteristics

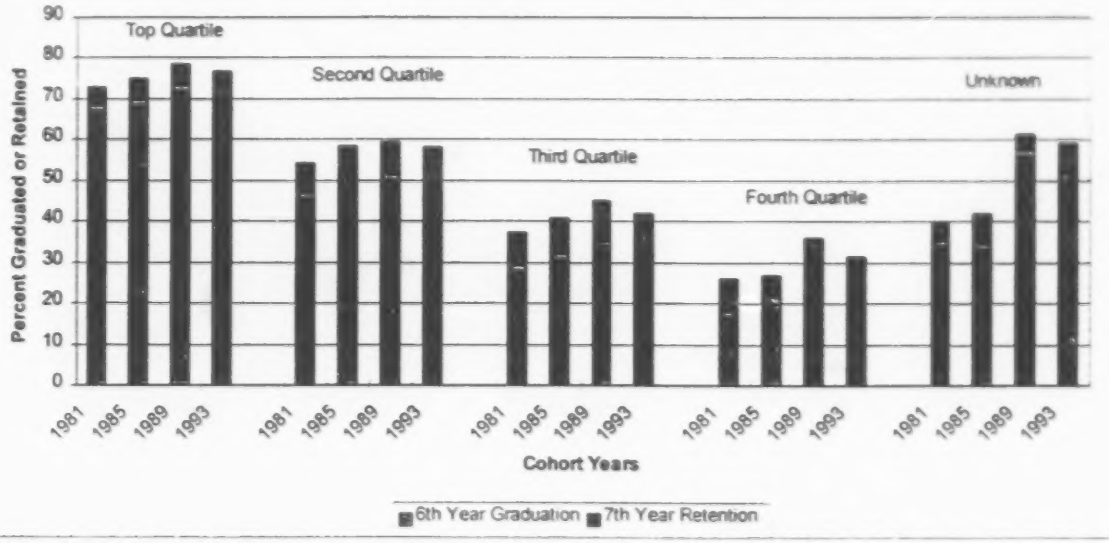
This section discusses six-year graduation and seventh year continuation trends by selected characteristics of the new freshman. These characteristics include high school quartile, age at entry, race/ethnicity, gender and residency. Looking at these rates with respect to student characteristics helps point to the unique needs of diverse student populations. However, these student characteristics and other factors interact and must be considered in combination when making policy decisions.

Performance by selected student characteristics is shown for the Fall 1981, 1985, 1989 and 1993 cohorts. Appendix E contains the detailed data and Appendix F contains the proportions of the cohorts included in each of the student demographic categories.

High School Quartile

As presented in Figure 5, graduation rates for new freshmen who graduated in the top quartile of their high school classes were more than double the rates for students from the third and fourth quartiles of their high school classes. Conversely, seventh year retention rates are slightly higher for students from the lower halves of their classes. Seventy-two percent of the Fall 1993 cohort in the top quartile of their high school classes graduated in six years and 4 percent were retained to the seventh year. Sixteen percent of the cohort from the bottom quartile graduated within six years and 16 percent were retained to the seventh year. The overall increase in the graduation rate to 59.5 percent for the 1993 cohort reflects decreases in the number of students admitted and enrolled from the bottom quartiles of their classes. Appendix F shows that the proportion of students from the lower half of their high school classes enrolled in the UW has declined from approximately 20 to 10 percent.

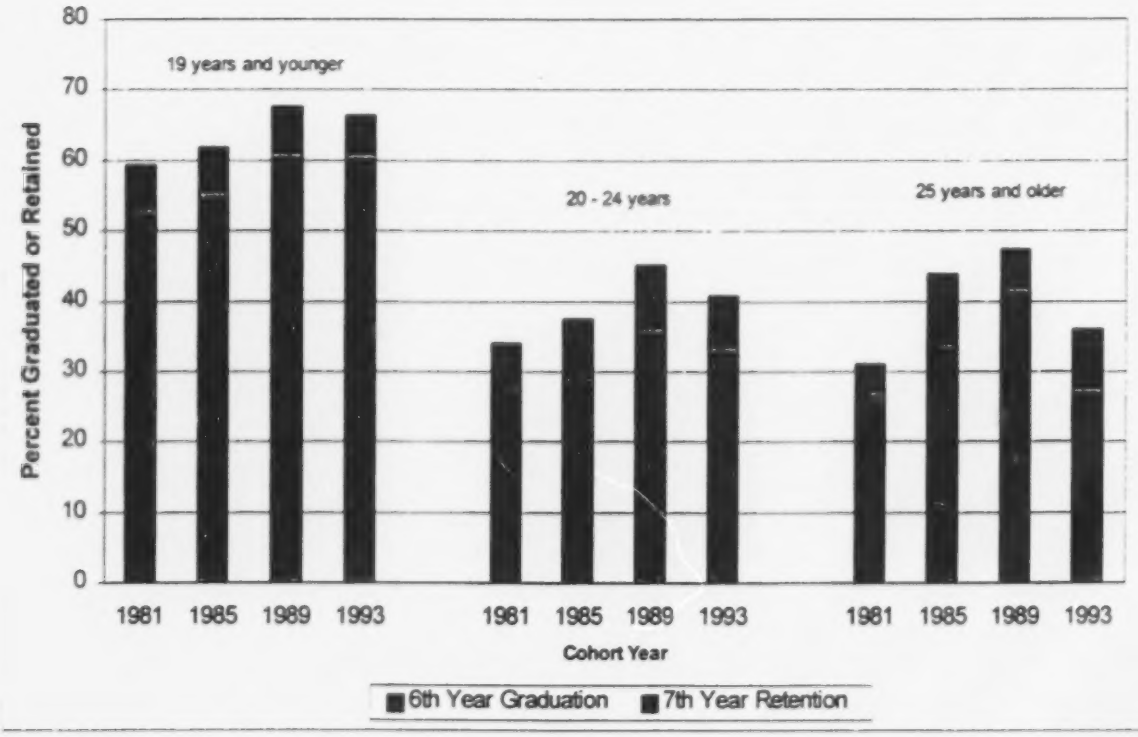
Figure 5
UW System Graduation and Retention Rates by High School Quartile



Age at Entry

The six-year graduation rate and seventh year retention rate, according to the students' age at entry, are shown in Figure 6. Students younger than 20 years of age at entrance graduated at nearly twice the rate of the older age groups. 60.5 percent of the Fall 1993 cohort under the age of 20 graduated within six years of entrance and 5.4 percent were retained in the seventh year. By contrast, 27.4 percent of the Fall 1993 cohort who were 25 years old or older at entrance graduated within six years and 8.6 percent were retained to the seventh year. This older group composed only one percent of the cohort. For the 1993 cohort, approximately 96 percent of the full-time new freshman cohort fell within the traditional age category (under 20 years of age).

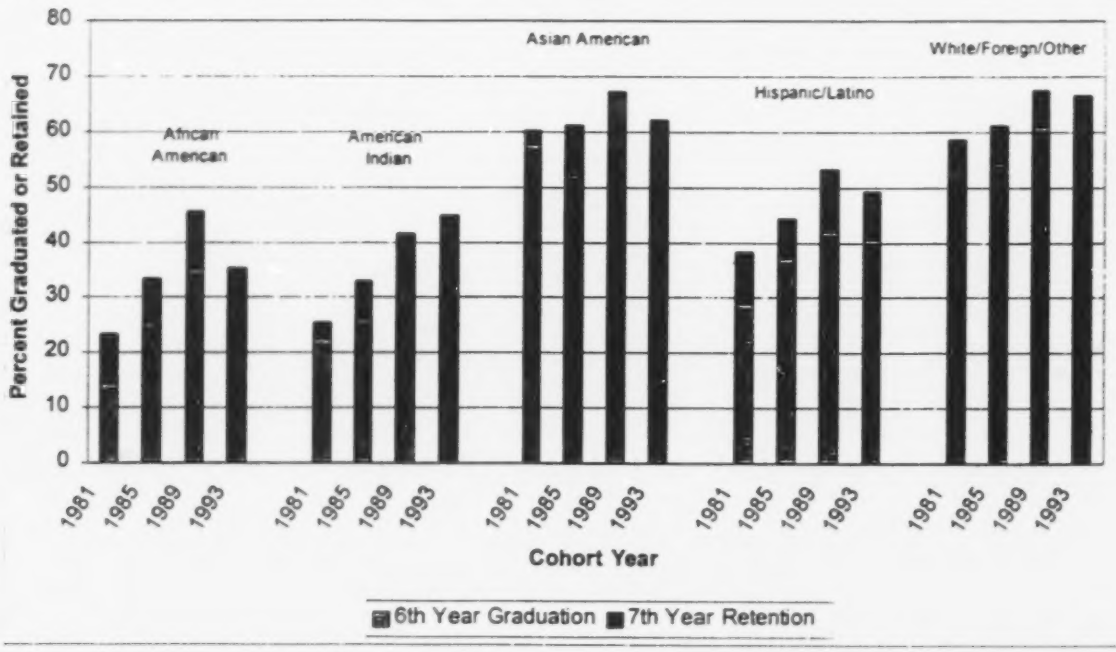
Figure 6
UW System Graduation and Retention Rates by Age at Entrance
For Full-time New Freshmen



Race/Ethnicity

Figure 7 shows the six-year graduation rate and seventh year retention rate by students' race/ethnicity. Graduation and retention rates have increased for all race/ethnic categories since the late seventies. Due to the relatively small numbers of students in some of the race/ethnicity categories, percentile fluctuations may appear more dramatic than the actual numeric changes. Although the six-year graduation rates are lower for students of color (African American, American Indian, Asian American and Hispanic/Latino), the seventh year retention rates are higher than for the combined category of Whites, Foreign and other.

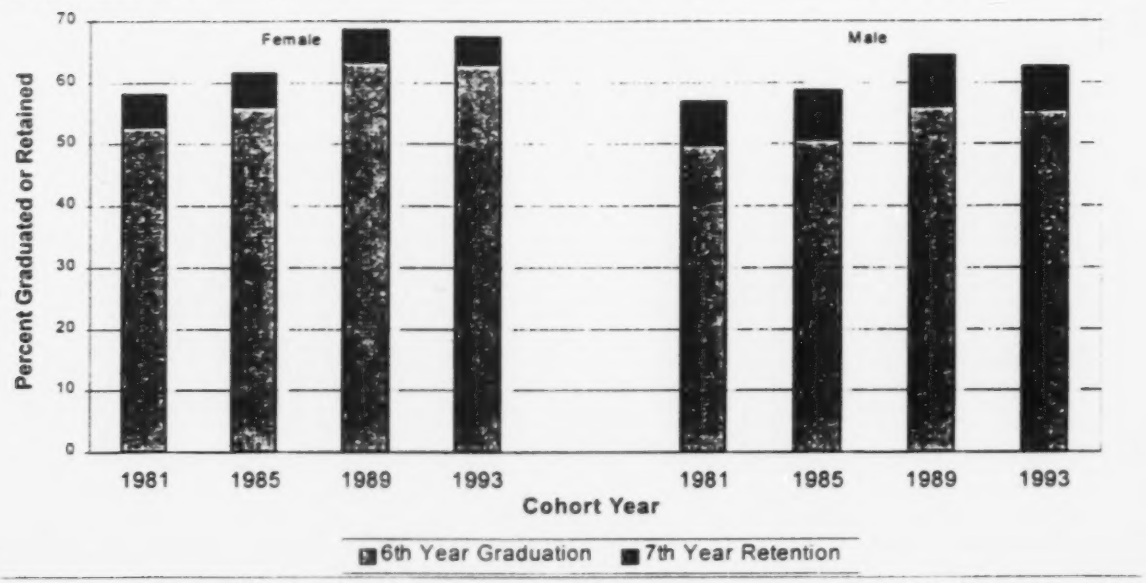
Figure 7
UW System Graduation and Retention Rates by Race/Ethnicity
For Full-time New Freshmen



Gender

Figure 8 illustrates the graduation and retention rates for new freshmen by gender. Since the 1970's, female students have had higher six-year graduation rates than their male counterparts. Fall 1993 entering new freshmen female students graduated at a rate of 62.7 percent within six years. Males graduated at a rate of 55.5 percent within six years. The graduation rate for the entire Fall 1993 cohort was 59.5 percent. Retention to the seventh year is higher for male students than it is for female students, partially closing the gap in eventual graduation rates.

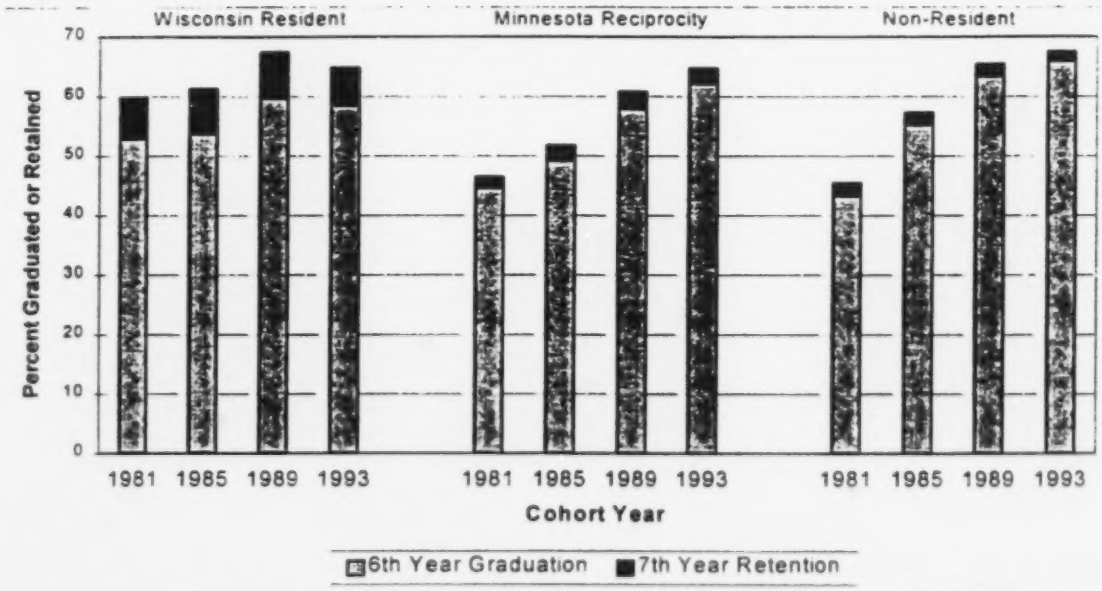
Figure 8
UW System Graduation and Retention Rates by Gender
For Full-time New Freshmen



Residency

In Figure 9, the six-year graduation rates and seventh year retention rates of Wisconsin residents are compared with non-resident students and those enrolled under the Minnesota Reciprocity agreement. In recent cohorts, Minnesota reciprocity students and other non-resident students graduated within six years at a higher rate than Wisconsin residents. For the Fall 1993 cohort, 62.1 percent of Minnesota reciprocity students graduated within six years and 65.6 percent of other non-residents graduated within six years, while 58.5 percent of Wisconsin residents graduated in the same period. However, six percent of Wisconsin resident students were retained to the seventh year, indicating that resident students' eventual graduation rates are close to those of the non-residents.

Figure 9
UW System Graduation and Retention Rates by Residency
For Full-time New Freshmen



SECTION III:
UW Colleges
Retention, Graduation,
& Transfer-out Rates

The mission of the UW Colleges focuses on the expansion of access to higher education in Wisconsin as well as the preparation of students for transfer into the UW four-year campuses. On average, the characteristics of the full-time new freshmen served by the UW Colleges differ from the characteristics of the students who start at four-year institutions. For example, the ACT scores and high school rank of students who enter the UW Colleges tend to be lower than those of students entering the four-year institutions, reflecting the role of the UW Colleges in expanding educational opportunities to a broader population. To some extent, this emphasis on increasing access may be associated with decreased levels of transfer and subsequent baccalaureate degree completion. Additional factors contributing to lower levels of graduation are "leakages" of UW College transfer students to colleges outside the UW System, and student goals that are not consistent with the acquisition of a baccalaureate degree. Consequently, it is appropriate that the retention and graduation rates of the UW Colleges should be assessed utilizing measures that take into account their particular mission and function.

The traditional outcome measures of second year retention and six-year graduation rates provide little substance for evaluating the performance of the UW Colleges. As presented in Table 5, the second year retention rates for new freshmen in the UW Colleges have fluctuated, reaching a high of 68.1 percent in 1989 and a low of 60.4 percent in 1994. This rate presents no significant directional trend. Six-year baccalaureate graduation rates for new freshmen who start at the UW Colleges, also show fluctuations. However, the overall trend is a decline from the early 1980's to present. For the 1982 full-time new freshman cohort, the six-year graduation rate was at a high of 34.9 percent, contrasting with a low of 25.5 percent for the 1993 cohort. This downward trend may be explained, in part, by an overall decline in the proportion of students who transferred from the UW Colleges to the UW four-year institutions, diminishing the pool of potential six-year graduates. The third year transfer rate from UW colleges to UW four-year institutions declined from 27.1 percent in 1982 to 20.5 percent for the 1993 new freshman cohort.

Both second year retention rates and six-year graduation rates appear to offer limited usefulness for policy making related to the UW Colleges. A more meaningful performance measure for the UW Colleges is a persistence rate that focuses solely on those students who transfer to the four-year institutions. It is useful to compare the UW transfer students to transfer students from institutions other than the UW Colleges. Such comparisons have been presented in reports to the Joint Committee on Academic Programs (Fall 1999 JACAP), and in the Occasional Research Brief (ORB) regarding UW System transfer students (Vol: 98, Year: 1998). These reports show that the transfers from the UW Colleges graduate at a higher rate than transfer students from any other type of institution.

Table 5
UW Colleges Full-time New Freshmen
Retention, Transfer and Graduation Rates

Fall	Cohort Size	Year of Enrollment 2nd Year Retention(1)	3rd Year Transfer Out(2)	6th Year Bach. Degree(3)
1977	2,847	60.6	41.9	31.7
1978	2494	62.8	43.4	32.4
1979	2,598	65.8	44.2	33.3
1980	2,816	62.9	41.1	30.9
1981	2,827	65.9	42.5	32.0
1982	2,961	67.3	44.9	34.9
1983	3,193	66.5	44.8	32.9
1984	2,934	66.2	44.8	33.0
1985	2,703	64.7	39.7	32.1
1986	2,896	66.3	40.2	30.8
1987	2,835	63.3	36.9	27.1
1988	3,312	65.7	36.4	27.5
1989	2,839	68.1	38.4	28.7
1990	2,744	64.9	35.2	27.6
1991	2,658	64.2	34.4	25.3
1992	2,829	63.1	33.1	25.3
1993	2,879	60.5	35.4	25.5
1994	2,572	60.4	34.3	
1995	2,495	60.9	36.3	
1996	2,421	63.9	36.8	
1997	2,493	64.8		
1998	3,039	65.7		

(1) Retained at any UW institution.
(2) Transfer to a 4-Year UW institution.
(3) Bachelor degree attainment from a UW 4-year institution as a percent of entering cohort.

Section IV: Benchmarking

The growing reliance on retention and graduation rates for evaluating institutional performance has created a need to develop appropriate standards or benchmarks that can be used for purposes of comparison. Retention and graduation rates are influenced by a variety of factors. Some of these factors are within the control of the institution and others, such as student demographics, economic variables, and social/cultural factors, are subject to limited or no institutional control. In light of these influences, valid comparisons can be made only with institutions or systems that have comparable organization, missions, and settings. Little can be learned about institutional performance by comparing institutions with different missions, serving dissimilar student populations and operating in different social, cultural or economic environments.

Several different approaches for developing benchmarks to be used for evaluating institutional performance have been employed in recent years. This section briefly addresses four possible approaches to the development of benchmarks that have been utilized across the United States. These approaches include expected graduation rates, peer comparisons, regional and national comparisons, and internal comparisons over time.

Benchmarks Derived from Expected Graduation Rates

Alexander Astin (1987) developed the concept of an expected graduation rate as a way of evaluating institutional performance. His approach was based on a regression model that used student and institutional characteristics from a large number of colleges and universities to predict graduation rates. The model provided a basis for estimating an expected graduation rate for an institution based on the characteristics of the students that it served. The actual graduation rate for an institution could be compared with the predicted rate and judgements made about institutional performance, assuming the selected characteristics are relevant and appropriate. Astin's model was adapted by Mortenson's *Postsecondary Educational Opportunity* and *U.S. News and World Report* to rate institutional performance. This raised public interest in the concept of predicted graduation rates as benchmarks. However, the choice of variables included in the model determines the predicted rate. Since there is no agreement on the variables to be included, differing models have yielded conflicting results.

Benchmarks Derived from Peer Institutions

As an alternative to the expected rate concept, peer comparisons can be used to accomplish the same purposes. To the extent that a peer group includes institutions that serve similar student populations and face comparable external factors, comparisons of retention and graduation rates can be a useful gauge of institutional performance. Furthermore, if the peer group is large enough, differences between institutions may cancel each other out and therefore, even if all of the institutions are not perfect matches, the group average may provide a useful benchmark. However, as with the expected graduation rate approach, the less comparable the peer group, the less valid the comparison.

Peer group selection has always been a complex and problematic process. Developing appropriate peer groups for retention and graduation rate comparisons requires balancing a number of factors that make it difficult to achieve agreement among various constituencies. In order to make peer comparisons for all of the UW institutions, it would be necessary to construct several peer groups that reflect the different missions of the institutions. One approach has been the selection of peer institutions on the basis of their

membership in particular associations, such as athletic conferences. Other approaches focus on the selection of peer institutions on the basis of shared missions and other institutional characteristics and settings. However, such peers are often a poor fit for retention and graduation comparisons, since student characteristics are rarely considered.

Benchmarks Derived from National and Regional Comparisons

Another approach to establishing external benchmarks involves comparisons with overall national and regional retention/graduation rates. These rates are best suited to system-level comparisons, since they are based on aggregates of diverse institutions. National graduation rate data by institution were obtained from the National Center on Education Statistics (NCES). For the purposes of this research brief, the institutions included were all public four-year universities in the 50 states. The regional rate was also obtained from NCES using public four-year institutions in the mid-western states (Minnesota, Iowa, Michigan, Ohio, Indiana and Illinois). The primary limitation of both the national and the regional comparisons derives from the fact that diverse institutions, with dissimilar missions and functions, are aggregated. However, the advantage of using regional or national data is that this provides a single rate for UW System benchmarking. Of the full-time new freshmen who entered the UW System in Fall 1991, 51.8 percent graduated from the institution where they started within six years. This compares to 47.6 percent of full-time new freshmen who entered a four-year public institution nationwide.

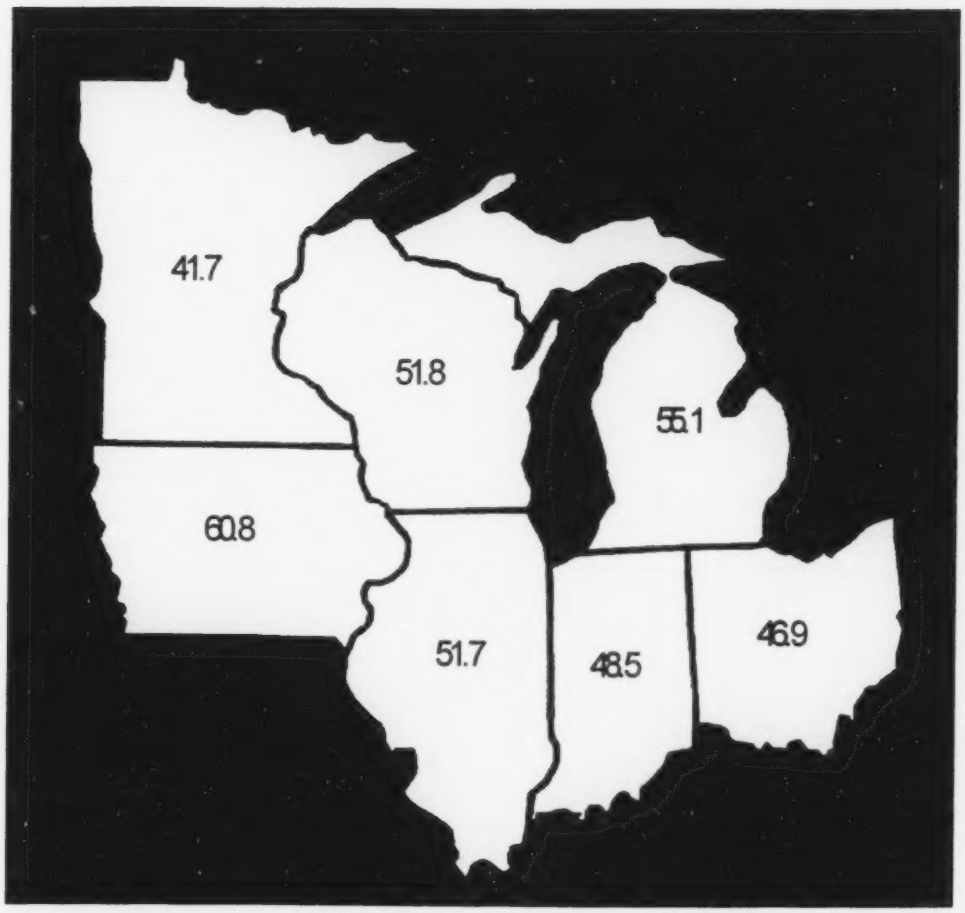
Benchmarks Derived from Internal UW System Data

The above-mentioned comparisons are useful for measuring institutional or system performance against external standards. However, in light of the complexity of all of these approaches to benchmark development, internal trend data provide a more useful option for measuring institutional improvement. Focusing on internal year-to-year comparisons mitigates concerns over comparability and challenges institutions to improve performance within their own mission. A longitudinal approach to the assessment of performance lends itself to the "continuous improvement" model of institutional self-evaluation. Also, by focusing on trend data, emphasis is placed on the progress toward a goal, and not just the goal itself.

Table 7
National Graduation Rate Comparison (At Same Institution Where Started)
Fall 1991 Full-time New Freshmen

	Fall 1991 Cohort	
	UW System	National
Overall Graduation Rate	51.8	47.6

Figure 12
Midwest Graduation Rates (At Same Institution Where Started)
Fall 1991 Full-time New Freshmen



CONCLUSION

Overall UW retention rates have increased fairly steadily, with some small ups and downs, from 1977 to 1998. Student attrition is greatest in the first year after matriculation, significantly less in the second year, and still less thereafter. Cravatta, a student retention theorist, states that "for many young adults, the freshmen year of college is the 'second cutting' that severs the cord connecting them to family, high-school friends, and hometown" (1995). The freshman experience is often fraught with multiple pitfalls and obstacles that require major adjustments. With this in mind, higher education policy makers are beginning to focus greater resources on the development of new academic, advising, and social intervention programs aimed at bolstering second year retention rates. Such interventions have the greatest potential for dramatically improving overall retention and graduation rates.

This recent rebound in the four-year graduation rate has coincided with the implementation of new policies to reduce credits-to-degree. These policies not only included reductions in the number of credits required for graduation but also increased the availability of the required core courses. However, there is a limit to how far credits can be reduced while retaining academic program integrity and reasonable student choice.

Six-year graduation rates have risen steadily for freshmen cohorts from 1977 to 1993, with a peak in 1989. These rates are important measures for comparisons with peer institutions, since national reporting has recently begun to focus on the six-year graduation rates of full-time new freshmen. The positive correlation between two-year retention and subsequent graduation further emphasizes the need for concerted intervention during the first academic year.

Student characteristics also influence six-year graduation rates and trends. Predictably, students who graduated from high school in the highest quartiles of academic rank were most likely to persist and graduate. The other student characteristics (age, gender, and ethnicity) also correlate with some indicators of performance. However, without examining interactions and intervening/confounding variables, such data are of limited policy use. For example, the inclusion of economic factors may override the effects of the other variables. In future research briefs, multivariate analyses of the relationships between a variety of factors and the retention/graduation rates will help to explain how these variables contribute individually and interact with one another.

A number of peer comparisons are presented in this brief, with some discussion of their limitations. Peer groups of institutions, systems and states offer an approach to the development of benchmarks based on a variety of student and institutional characteristics. However, institutions are often so diverse in terms of their composition and their missions as to make comparisons difficult and often ambiguous. It is even more difficult to find appropriate peer groups for the UW Colleges, since they differ in mission and function from community colleges and yet are unlike the four-year institutions. Consequently, the best way to assess institutional improvement is to focus on internal trend data. Trends and peak performance years can be incorporated into the development of standards or goals. When feasible and appropriate, comparisons can be made on a selective basis with peer groups and benchmarks outside the UW System. For the UW System as a whole, the best external comparisons can be made with national graduation data.

Although it is clear that retention and graduation rates are of significant interest to higher education stakeholders, the specific determinants of whether or not a student remains in school and continues through graduation are not often scrutinized. Some of the conclusions drawn in this research brief suggest that additional study of the phenomena of retention and graduation may help to delineate the root causes of student attrition, the forms of institutional impact on retention, and the ways in which these interact. Vincent Tinto, researcher and author in the field of student retention, points out that retention rates have little meaning as global outcome measures. Instead these rates should be viewed as a shared symptom of several discrete phenomena, problems or conditions. These phenomena may best be explained in terms of the specific retention-impacting factors that reflect the unique characteristics of both the students and the institutions.

The primary determinants of successful retention and graduation can be broken down into 1) factors that derive from experiences prior to college and individual student characteristics, and 2) factors that derive from experiences subsequent to admission into the university. Experiences before college and student characteristics are input variables which can not be affected to any great extent by higher education institutions, except through early intervention efforts or pre-college programs. Retention researchers (Spady and Tinto) have categorized the experiences subsequent to admission as "integration" or "engagement" variables. These variables, that reflect the students' assimilation into college life, are more likely to be affected by institutional policies and practices. However, the level of institutional impact can vary greatly depending on the degree of influence this can exert on given aspects of student integration. The National Survey of Student Engagement (NSSE), in which the UW System will participate in 2001, is grounded in the theories of integration/engagement and is designed to measure student involvement in discrete engagement events or activities that have been identified as promoting retention and graduation. The NSSE will be incorporated into *Achieving Excellence*, the new accountability report for the UW System. This will provide a new opportunity for exploring the root causes of student attrition and offer greater insights into the development of successful retention intervention initiatives.

APPENDIX

Appendix A

Second Year Retention Rates by Institution
For Full-time New Freshmen

	1981 Cohort		1985 Cohort		1989 Cohort		1993 Cohort		1998 Cohort	
	Retained where started	at any UW	Retained where started	at any UW	Retained where started	at any UW	Retained where started	at any UW	Retained where started	at any UW
UW-Madison	84.9	88.5	86.2	89.4	89.6	91.1	90.8	92.5	91.4	93.5
UW-Milwaukee	69.9	75.4	72.5	78.4	77.1	81.9	63.9	69.2	69.9	74.6
UW-Eau Claire	70.8	79.4	73.1	80.6	81.2	85.9	78.4	84.3	79.2	86.6
UW-Green Bay	62.8	70.3	65.6	72.0	77.2	82.6	75.8	82.7	69.0	80.6
UW-La Crosse	66.5	75.3	71.4	79.3	74.4	80.8	77.4	84.3	81.7	87.9
UW-Oshkosh	69.2	76.5	71.0	76.3	78.5	84.0	74.1	79.7	73.5	81.9
UW-Parkside	59.4	66.2	61.5	67.8	75.0	81.8	71.5	77.0	61.3	68.9
UW-Platteville	70.7	77.6	69.0	76.6	76.5	81.8	77.5	83.7	78.7	82.6
UW-River Falls	63.8	67.6	64.8	68.2	70.7	73.3	73.3	76.4	77.1	81.7
UW-Stevens Point	66.4	74.8	67.6	74.9	75.4	80.2	73.8	79.3	76.0	81.3
UW-Stout	67.8	74.2	67.6	73.2	73.9	78.4	73.4	78.0	73.5	78.0
UW-Superior	56.4	61.1	58.0	63.3	56.9	60.7	68.4	72.4	60.3	64.3
UW-Whitewater	71.8	79.8	70.9	78.2	77.6	84.0	72.2	78.1	75.6	83.1
UW System	71.3	77.8	73.6	79.4	79.4	83.7	77.7	82.4	78.5	84.0

Appendix B

Four-Year Graduation Rates by Institution For Full-time New Freshmen

	1981 Cohort		1985 Cohort		1989 Cohort		1993 Cohort		1995 Cohort	
	Graduated where started	at any UW	Graduated where started	at any UW	Graduated where started	at any UW	Graduated where started	at any UW	Graduated where started	at any UW
UW-Madison	25.5	26.3	28.7	29.5	32.2	32.4	36.7	37.0	39.9	40.5
UW-Milwaukee	10.0	10.8	10.6	11.6	11.8	12.8	6.7	7.5	10.4	11.2
UW-Eau Claire	20.8	23.9	14.2	16.0	13.0	13.9	13.3	15.2	16.4	17.9
UW-Green Bay	14.3	16.1	11.8	14.4	11.4	12.2	13.6	16.2	12.5	15.0
UW-La Crosse	13.7	16.1	8.8	9.9	8.7	9.9	14.3	15.9	18.7	20.9
UW-Oshkosh	14.7	16.1	11.8	12.8	9.2	10.0	13.6	15.0	14.1	16.1
UW-Parkside	8.7	10.7	7.5	9.2	7.8	8.4	7.4	8.9	6.5	7.5
UW-Platteville	20.1	21.5	13.2	14.5	13.2	13.8	11.8	13.3	13.6	14.0
UW-River Falls	11.3	12.0	11.1	11.7	9.1	10.1	19.4	19.8	21.3	22.1
UW-Stevens Point	13.1	14.6	9.5	10.9	11.6	13.4	14.7	16.1	19.3	22.0
UW-Stout	17.9	18.9	11.5	12.0	9.9	10.0	14.0	14.4	13.0	13.7
UW-Superior	12.4	13.2	12.4	12.7	7.5	7.8	12.6	13.0	17.3	18.7
UW-Whitewater	20.3	22.0	14.3	15.2	13.9	15.1	13.7	15.0	15.7	17.2
UW System	17.4	18.9	15.7	16.8	16.3	17.0	18.7	19.7	21.4	22.7

Appendix C

Six-Year Graduation Rates by Institution
For Full-time New Freshmen

	1981 Cohort		1985 Cohort		1989 Cohort		1993 Cohort	
	Graduated		Graduated		Graduated		Graduated	
	where started	at any UW	where started	at any UW	where started	at any UW	where started	at any UW
UW-Madison	64.5	68.6	67.0	71.5	72.3	74.6	74.3	76.7
UW-Milwaukee	31.2	36.7	34.8	41.1	39.9	46.2	33.2	38.2
UW-Eau Claire	46.0	57.6	46.9	56.5	57.3	64.9	51.7	61.2
UW-Green Bay	31.8	41.5	35.4	43.4	40.3	48.7	47.3	58.0
UW-La Crosse	40.3	50.7	40.7	49.1	46.2	56.1	48.7	58.9
UW-Oshkosh	38.8	45.8	43.4	48.2	47.2	54.0	46.8	54.0
UW-Parkside	20.5	30.6	23.9	34.3	31.8	41.8	27.3	37.4
UW-Platteville	46.6	54.7	44.9	51.0	54.5	60.5	53.2	62.7
UW-River Falls	32.6	35.5	36.8	40.0	41.1	44.9	48.6	51.9
UW-Stevens Point	41.6	49.0	40.7	47.6	52.1	59.0	52.8	60.9
UW-Stout	45.2	49.0	45.0	49.5	51.0	55.9	49.6	54.8
UW-Superior	27.4	32.9	30.4	33.8	30.4	34.2	34.0	38.6
UW-Whitewater	45.5	54.0	47.6	53.0	55.7	62.0	47.2	54.7
UW System	44.4	51.4	47.5	53.6	54.1	59.9	53.0	59.5

Appendix D

Estimated Eventual Graduation Rates
(Six-year Graduation Rates Plus Seventh Year Retention Rates)
For Full-time New Freshmen

	1981 Cohort		1985 Cohort		1989 Cohort		1993 Cohort	
	Est. Graduated		Est. Graduated		Est. Graduated		Est. Graduated	
	where started	at any UW	where started	at any UW	where started	at any UW	where started	at any UW
UW-Madison	68.3	74.2	70.1	76.5	75.6	79.3	76.6	80.2
UW-Milwaukee	42.3	49.8	45.3	53.3	51.0	59.1	42.8	49.3
UW-Eau Claire	47.7	61.8	49.5	62.1	60.5	70.4	54.4	66.5
UW-Green Bay	35.0	47.0	40.4	50.7	45.3	55.8	50.0	63.5
UW-La Crosse	43.1	56.6	44.2	56.2	50.3	62.9	51.5	63.9
UW-Oshkosh	41.8	52.1	47.5	55.9	52.8	62.8	51.5	61.0
UW-Parkside	25.1	37.8	30.8	44.6	39.4	53.4	32.9	46.0
UW-Platteville	48.7	59.5	49.7	58.7	58.8	66.6	56.9	69.1
UW-River Falls	35.6	40.4	40.9	46.2	45.8	50.9	51.7	56.1
UW-Stevens Point	44.4	54.9	43.9	53.6	55.9	65.0	54.0	64.7
UW-Stout	47.0	53.0	47.5	53.8	53.2	61.0	53.1	60.0
UW-Superior	29.7	36.5	33.8	37.5	33.9	39.4	39.5	46.3
UW-Whitewater	47.4	59.3	50.4	59.3	59.7	69.2	50.5	60.4
UW System	48.0	57.5	51.6	60.3	58.6	66.6	56.6	65.1

Appendix E

Six-Year Graduation and Seventh Year Retention Rates by Full-time New Freshmen Characteristics

	1981 Cohort		1985 Cohort		1989 Cohort		1993 Cohort	
	Graduated at any UW	Retained at any UW	Graduated at any UW	Retained at any UW	Graduated at any UW	Retained at any UW	Graduated at any UW	Retained at any UW
High School Quartile								
Top quartile	68.2	4.7	69.7	5.3	73.1	5.2	72.4	4.2
Second quartile	46.9	7.1	50.7	7.6	51.5	7.9	51.2	6.7
Third quartile	29.2	8.2	32.1	8.6	35.3	9.6	33.9	7.9
Bottom quartile	17.9	8.2	21.3	5.5	23.7	12.0	15.6	15.6
Unknown rank	35.0	4.7	34.5	7.3	57.3	4.0	55.5	3.6
Age at Entry								
Under 20 years	53.1	6.2	55.3	6.5	60.9	6.6	60.8	5.5
20 - 24 years	28.2	5.8	29.2	8.2	36.2	8.9	33.5	7.2
Over 24 years	27.1	4.0	33.8	10.1	41.7	5.7	27.4	8.6
Race/Ethnicity								
African American	14.3	9.1	25.4	7.9	35.0	10.5	27.2	8.5
American Indian	22.5	2.9	26.0	6.9	30.4	11.2	33.8	11.0
Asian American	57.7	2.5	52.3	8.8	58.2	9.0	52.7	9.3
Hispanic/Latino	28.9	9.4	37.0	7.4	41.9	11.2	40.6	8.7
White/Other/Foreign	52.5	6.1	54.4	6.6	60.8	6.5	61.1	5.3
Residency								
Wisconsin	52.9	6.9	53.8	7.5	59.7	7.7	58.5	6.3
Minnesota	44.6	1.9	49.2	2.6	57.9	2.9	62.1	2.6
Non-resident	43.3	2.2	55.2	2.1	63.3	2.1	65.9	1.6
Gender								
Female	53.0	5.1	56.2	5.3	63.3	5.2	63.0	4.3
Male	49.8	7.2	50.6	8.2	56.1	8.3	55.5	7.0
System Total	51.4	6.1	53.6	6.7	59.9	6.7	59.5	5.6

Appendix F

Full-time New Freshmen Characteristics

	1981 Cohort		1985 Cohort		1989 Cohort		1993 Cohort	
	Number in Cohort	Percent of Cohort	Number in Cohort	Percent of Cohort	Number in Cohort	Percent of Cohort	Number in Cohort	Percent of Cohort
High School Quartile								
Top quartile	10,045	43.5	9,797	42.0	9,583	48.2	9,161	48.3
2nd quartile	7,114	30.8	7,690	33.0	7,217	36.3	6,725	35.4
3rd quartile	3,708	16.1	3,984	17.1	2,128	10.7	1,798	9.5
Bottom quartile	1,035	4.5	1,051	4.5	316	1.6	288	1.5
Unknown rank	1,188	5.1	816	3.5	638	3.2	1,004	5.3
Total	23,090	100.0	23,338	100.0	19,882	100.0	18,976	100.0
Age at Entry								
Under 20 years	21,501	93.1	21,709	93.0	19,019	95.7	18,132	95.6
20 - 24 years	1,243	5.4	1,227	5.3	638	3.2	647	3.4
Over 24 years	346	1.5	402	1.7	225	1.1	197	1.0
Total	23,090	100.0	23,338	100.0	19,882	100.0	18,976	100.0
Race/Ethnicity								
African American	480	2.1	417	1.8	342	1.7	466	2.5
American Indian	102	0.4	115	0.5	125	0.6	127	0.7
Asian American	154	0.7	271	1.2	398	2.0	512	2.7
Hispanic/Latino	159	0.7	189	0.8	186	0.9	320	1.7
White/Other/Foreign	22,195	96.1	22,346	95.7	18,831	94.7	17,551	92.5
Total	23,090	100.0	23,338	100.0	19,882	100.0	18,976	100.0
Residency								
Wisconsin	19,356	83.8	19,447	83.3	16,057	80.8	15,432	81.3
Minnesota	1,707	7.4	1,753	7.5	1,957	9.8	1,777	9.4
Non-resident	2,027	8.8	2,138	9.2	1,868	9.4	1,767	9.3
Total	23,090	100.0	23,338	100.0	19,882	100.0	18,976	100.0
Gender								
Female	11,654	50.5	12,284	52.6	10,548	53.1	10,176	53.6
Male	11,436	49.5	11,054	47.4	9,334	46.9	8,800	46.4
Total	23,090	100.0	23,338	100.0	19,882	100.0	18,976	100.0
System Total	23,090	100.0	23,338	100.0	19,882	100.0	18,976	100.0

OCCASIONAL RESEARCH BRIEFS / INFORMATIONAL MEMORANDA

Vol. 00, No. 1, June 2000	New Freshmen Outcomes: Retention and Graduation
Informational Memorandum	Degrees Conferred: 1998-99 Update
Informational Memorandum	Student Financial Aid: 1998-99 Update
Vol. 99, No. 1: April 1999	The Graying of the Faculty in the UW System
Informational Memorandum	Trends in Enrollment: Fall 1998 Update
Informational Memorandum	Student Financial Aid: 1997-98 Update
Informational Memorandum	The New Freshman Class: Fall 1998
Vol. 98, No. 1: February 1998	Student Financial Aid in the UW System: 1996-97 Update
Vol. 98, No. 2: February 1998	Trends in Degrees Conferred: 1996-97 Update
Vol. 98, No. 3: May 1998	Transfer Students
Informational Memorandum	Trends in Enrollment: Fall 1997 Update
Vol. 97, No. 1: March 1997	Access Update: The Class Of Fall 1996
Vol. 96, No. 1: May 1996	New Freshman Outcomes: Retention and Graduation
Vol. 96, No. 2: September 1996	1994-95 Faculty Age Distributions In The UW System
Vol. 95, No. 1: February 1995	Trends In Enrollment: Fall 1994.
Vol. 95, No. 2: March 1995	Trends In Degrees Conferred: 1993-94 Update.
Vol. 95, No. 3: March 1995	Student Financial Aid Update: 1993-94.
Vol. 95, No. 4: May 1995	Access Update: The Class Of Fall 1994
Vol. 95, No. 5. May 1995	New Undergraduate Class: Fall 1994
Vol. 95, No. 6. December 1995	New Freshman Outcomes: Retention and Graduation
Vol. 94, No. 1: February 1994	Trends In Degrees Conferred, 1982-83 To 1992-93.
Vol. 94, No. 2: February 1994	Trends In Enrollment: Fall 1993 Update.
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Vol. 94, No. 4: April 1994	Meeting The Financial Aid Needs Of UW Resident Undergraduates.
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Vol. 91, No. 5: August 1991	Trends In Enrollment.

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New Freshman Outcomes: Retention and Graduation
Occasional Research Brief
June 2000

Revision Page

Please note the following revisions to the Occasional Research Brief:

Page 2, Paragraph 2, last sentence should read:
"For this most recent cohort, institutional second year retention rates range from **64.3** to 93.5."

Page 4, Paragraph 1, second sentence should read:
"For the Fall 1993 cohort, six-year graduation rates vary from **37.4** percent to **76.7** percent, as would be expected in an array of institutions with differing missions."

Page 13, Paragraph 2, last sentence should read:
"The third year transfer rate from the UW Colleges to UW four-year institutions declined from **44.9** percent **for the 1982 cohort** to **36.8** percent for the 1993 new freshman cohort."

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